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# Japan Report

(FOUO 13/82)



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## JAPAN REPORT

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POLITICAL AND SOCIOLOGICAL

SUZUKI GOVERNMENT AT POLITICAL, DIPLOMATIC TURNING POINT

Tokyo YOMIURI SHIMBUN in Japanese 4 Jan 82 p 2

[Text] The year 1982, which we enter with a large reduction in welfare expenses and a big increase in defense expenses, seems to be a major turning point in both the domestic political and diplomatic aspects of the structure of postwar Japan. In view of the intention of all opposition parties, including middle-of-road forces, to request amendment of the budget draft, the current focus of attention is on how Prime Minister Suzuki, who wants to pass the budget draft without amendment, can ride out the Diet session. However, the large increase in defense spending and setback for welfare do not mean merely a quantitative change in the amount of money in the budget or the rate of increase. It has become more likely that the brakes on defense spending will be eliminated. The new budget draft also indicates a qualitative change in that the policy premises which have supported the postwar structure have collapsed. In the midst of a tense international situation, new ideas will be questioned in debates at the Diet and other opportunities.

A Year of Many Difficulties

Prime Minister Suzuki said that "This is going to be a year of many difficulties both domestically and diplomatically" at his New Year's press conference. The New Year began with the Polish situation in a hair-trigger situation. In the Middle East the confrontation between Israel and the Arab states has become tense again because of Israel's annexation of the Golan Heights. Depending on the situation in these areas, military tension may suddenly heighten throughout the world. There is a strong fear that Japan may have to face new difficulties--beginning with our Soviet policy, "the third oil crisis," and so forth.

As for the Japan-U.S. relationship, the Japanese Government worked out a 7.754 percent increase in the defense budget, and the U.S. Government appraised it as welcome in statements issued by Secretary of State Haig and Secretary of Defense Weinberger. For this reason the Japanese Government expects "a state of calm" in the bilateral relationship for a while.

However, Senate and House hearings on U.S.-Japanese problems are scheduled to begin in February. With the trade frictions symbolized by an increase in the bilateral trade deficit vis-a-vis Japan in the background, it is likely that U.S. dissatisfaction toward Japan will be brought up again. To eliminate nontariff barriers, the prime minister intends to complete draft revisions of related laws by the end of January and thereby demonstrate "Japan's effort to open its market."

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However, concerned domestic industries are expected to lodge strong protests. Moreover, even if the Japanese Government eliminates all nontariff barriers, an instant increase in imports from the United States cannot be expected. "The key to the U.S.-Japan relationship is how convincingly the Japanese Government can persuade the U.S. Congress that Japan is exerting efforts to open its market" (a government source).

## Political Life

In the midst of a severe international environment, Prime Minister Suzuki will carry out "a real administrative reform" in accordance with the basic report scheduled for presentation by the Second Special Administrative Investigation Council next June and will make preparations for reelection in the fall. This is the prime minister's strategy. However, the basic report is expected to call for "a bloody administrative reform" that involves revision of the management system of the three public corporations and five government enterprises, which include Nippon Telegraph and Telephone Public Corporation, Japan National Railways, and Japan Monopoly Corporation, and the integration or abolition of several ministries and agencies. Any one of these changes is quite a difficult problem.

"Without considerable leadership, it is impossible to realize them" (an LDP source). The problem is not just the challenge posed by the basic report. The prime minister could not hold down an increase in government employee salaries and in defense expenditure this year, and therefore could not even maintain the basic principle of the report of the First Special Administrative Investigation Council. Furthermore, he has been cornered into issuing more government bonds to finance the deficit. His public promise of "financial reconstruction" seems difficult to keep.

In particular, the administration is planning to eliminate the issuance of government bonds to cover deficits by FY-84. To achieve this goal, the target amount for reduction of the deficit in FY-82 is 1.83 trillion yen. Of that, the government bond portion stops at 1.5 trillion yen. Even within the cabinet, there is some question whether "the target can really be achieved."

Chief Cabinet Secretary Miqazawa emphasizes the administration's intention to hold tight to the final target of reduction of deficits financed by government bonds: "Depending on economic trends, we can expect an acceleration in the natural increase of taxes." If tax revenues decrease in FY-82 as they did last year, the administration has to either increase government bond issues again, postpone the date for achievement of the target reduction, or adopt new taxes such as a general consumption tax.

Adoption of any of these three alternatives means that the financial reconstruction and administrative reform on which Prime Minister Suzuki is wagering his political life will have collapsed. Then, the prime minister will be cornered in a difficult position.

## A Wavering Principle

The most outstanding characteristics of the 1982 budget draft, which contains an abundance of problems, are an extreme cut in social welfare spending and a large increase in defense expenditures. The rate of increase for social welfare spending

is 2 percent, which is the lowest since the end of the war. It has put an end to the welfare priority line, which every administration has adopted since the end of the war. Priority has clearly shifted from "butter rather than guns" or "both butter and guns" to "guns rather than butter."

For years there have been multiple brakes on defense spending: 1) the rate of increase must be held lower than that of social welfare spending; 2) defense spending as a percentage of all general account spending (percentage of the whole) must be kept lower than the percentage of the previous year; 3) defense spending must be kept within 1 percent of the GNP.

Among these brakes, the rates of increase for defense and welfare spending reversed by a narrow margin for the first time last year. The margin has been enlarged by far this year. This year's percentage of the whole, 5.21 percent, also exceeded that of the previous year, 5.13 percent, for the first time in 26 years. The ratio of defense spending relative to GNP this year is 0.933 percent, which is the same high level as 15 years ago. Moreover, the defense spending provided in the government's budget draft has exceeded the maximum guideline (the ceiling) in the outline for budget requests. This is an abnormal state.

Except for "within 1 percent of the GNP," all the brakes have failed. Moreover, it is said that "the last line" of within 1 percent of the GNP "will surely be broken within a few years" (a Defense Agency source).

The opposition parties are focusing on the "abnormal protrusion" of defense expenditures as a target for attack. They are preparing to request amendments, including a recompilation of the budget draft at the general session of the Diet which will reopen late in January. Because of this, the Diet session may be, for the first time in a long while, the place of "total confrontation between the government and the opposition parties."

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POLITICAL AND SOCIOLOGICAL

PROSPECTS, POWER OF TANAKA FACTION ANALYZED

Remarks by Rokosuke Tanaka

Tokyo NIHON KEIZAI SHIMBUN in Japanese 14 Jan 82 p 2

[Text] "It appears very likely that Mr Tanaka (the former prime minister) is innocent, but if he is convicted, I think the Tanaka faction on the contrary will be more strongly united." On the afternoon of 13 January, Liberal Democratic Party Policy Affairs Research Council Chairman Rokusuke Tanaka's bold statement ran through the political world in which the festive mood of the New Year still lingered. It was a straightforward analysis in a public place of a party leader's prospects in the Lockheed trial, which is expected to influence greatly the ensuring political situation and trends within the Tanaka faction. For this reason, Tanaka's comment spread very quickly. No less than 30 minutes after his comment a leading member of the Tanaka faction whispered to an acquaintance: "Mr Roku (chairman of the LDP Policy Affairs Research Council) reportedly has said something."

Later Chairman Tanaka explained to reporters the true intention of his remark and made the following correction: "Since it (the Lockheed incident) has been entrusted to the judicial authorities, I cannot comment on it. Even if Tanaka is not innocent, as some people say, the Tanaka faction will be strongly united and will not be dissolved. Moreover, it seems that I mistook the meaning of the question and gave the wrong answer."

At noon on 13 January LDP Policy Affairs Research Council Chairman Tanaka gave a lecture at the annual New Year's meeting of the Kisaragikai sponsored by the KYODO wire service. His lecture was primarily concerned with economic issues. After his speech, one participant asked him: "If Tanaka is convicted and given an actual prison term in the Lockheed trial, what will happen in the political arena? Is it likely that the political situation will become unstable and the Diet will be dissolved?"

The chairman answered these questions frankly: "Since I know the relationship between Mr Ohira [the late prime minister, Rokusuke Tanaka's political mentor] and Mr Tanaka, I truly hope that Mr Tanaka will be found not guilty. However, it seems very unlikely." "When Mr Tanaka is in such position (being a defendant), people will flock (to the Tanaka faction). This is, I think, because Mr Tanaka's gifted political sense and policies attract like-minded fellows and they knock on Tanaka's door." "As to whether this unity will collapse or not, people say that when a house is poor, a dutiful child is born."



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People say that the Tanaka faction will disintegrate, but I think that on the contrary it will be more strongly united." "Even if he is convicted in the first instance, if he appeals to a court of intermediate appeal, he will continue his political activities."

For the time being, people in the political arena are anticipating former Prime Minister Tanaka's conviction, and how the Tanaka faction will act in such a case is a focus of attention in forecasting the political situation thereafter. Several views have been put forward--a view that the Tanaka faction will split into a Nikaido (the LDP secretary general) group, a Takeshita (deputy secretary general) group, and a Shin Kanemaru group; a view that a split in the Tanaka faction will trigger reorganization of factions within the LDP and that a wave of generation change will then surge over the LDP; or, on the contrary, because there is well-grounded evidence of Tanaka's innocence, Prime Minister Suzuki appointed Mr Nikaido of the Tanaka faction the party's secretary general."

In this situation LDP Policy Affairs Research Council Chairman Tanaka, who says of himself--"Although some say I am a shrewd old man, no man is more timid and naive than I"--asserted positively that, even if Tanaka was convicted, the Tanaka faction would not disintegrate.

Leading members of the Tanaka faction seem more or less bewildered. They say: "Still, wasn't there any other way to say it?" Chairman Tanaka is a leading member of the Suzuki faction (Kochi-kai) and is extremely close to former Prime Minister Tanaka. He is in a position to promote Suzuki's reelection. Therefore, within the LDP there is the deep suspicion that "wasn't it his farsighted scheme to pretend that the comment was a slip of tongue and in fact to tighten the unity of the Tanaka faction so it will not waver hereafter?"

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Sources of Faction's Power

Tokyo NIHON KEIZAI SHIMBUN in Japanese 15 Jan 82 p 1

[Text] There was no more hesitation in his mind. Mr Akio Hisama, and LDP Diet member elected from the First District of Nagasaki Prefecture, vigorously opened the door of Tanaka's office. Former Home Affairs Minister Gotoda, Mme Sato [Tanaka's private financial secretary] and others were surrounding former Prime Minister Tanaka and talking about something.

Hisama: "Thank you for helping us to deal with the succession problem of the Nagasaki governorship and the appointment of Mr Hatsumura (current labor minister) to a cabinet post. Since the pending problems have been settled, I would like to formally join the Thursday Club (Tanaka faction)." Tanaka: "I will convey your desire to Mr Nikaido, the chairman of the club. Mr Oki (member of the House of Councilors) also told me that he would join us. He will join together with you." Sato: "Then, the membership will come to 108. Who will be first?" Hisama: "Since I am younger than Mr Oki, I may have more evil passions. So I will become the 108th member. [Buddhism holds that man has 108 kinds of evil passion] Thus, Mr Hisama, who ran as a member of the Komoto faction and was elected, became the 108th member of the Tanaka faction. It was just before the cabinet reshuffle at the end of November last year.

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A desire to belong to a group is said to be characteristic of Japanese. Politics also operates by means of factions. At the double election held in June 1980, 54 Tanaka faction members were elected to the House of Representatives and 32 members to the House of Councilors. Within the year and a half since then, the membership of the Tanaka faction has increased by 11 in both houses, and the Tanaka faction has strengthened its position as the largest faction in the LDP. While the Lockheed trial has been going on, why is only the Tanaka faction expanding? In addition to the "if you are to serve, serve the powerful for your own good" psychology of Diet members, the Tanaka faction possesses a mysterious power to attract Diet members.

The power of information: the Tanaka faction possess the knowhow for elections and submission of petitions. The source of the Tanaka faction's information capability is former Prime Minister Tanaka, who calls himself "a legislative consultant." He is the most informed about elections of all LDP members. "I have been pitching in the midst of political upheaval for 35 years. I know all about the objective of laws, their processes of enactment, and the sort of influence they give." The capability to deal with petitions of the Tanaka faction, which includes 31 former cabinet members, is high, and this is an advantage in a system of politics by petition.

The power of money: according to "The Balance Statement of Political Contributions" published by the Ministry of Home Affairs, the income of the Tanaka faction was 314 million yen in 1980, a 27-percent decrease from the previous year. It was smaller by far in comparison with that of the Fukuda faction (approximately 1.1 billion yen) and the Nakasone faction (approximately 1 billion yen). However, together with the income of leading members such as Mr. Nakaido, it exceeds 1.8 billion yen. Because the Tanaka faction is "a mutual aid group," leading members "pay to the authorities" in cases when Tanaka alone cannot take care of financial matters.

The power of mobility: the membership of the Tanaka Faction Secretaries Association under the flag of "Tanaka nationalism" numbers approximately 500. They are personal secretaries of Diet members as well as secretaries to the parent association (the Thursday Club). The association appoints an executive secretary for each floor of the Diet Office Building and promptly distributes the orders and messages of the parent association to each member. At election time the association establishes a combined election headquarters with the parent association and becomes the advance guard in "a board-covering-the-ditch election." [In an election the secretaries become the to boards cover up foul smelling things]

The three powers of the Tanaka factions are also the functions of the general trading companies unique to Japan. After the first oil shock, the general trading companies were severely criticized for "stockpiling and begrudging sales." They were asked to take some measures to stop "abusing the advantageous position" by the Fair Trade Commission. That increased the consciousness of crisis among the general trading companies, which led to the establishment of a management system capable of coping with the second oil shock. In the midst of criticism in regard to the Lockheed incident, the Tanaka faction also may have grown into "a more highly systematized political industry."

On New Year's Day this year, major figures from the political, business, and bureaucratic arenas showed up at Tanaka's private home in Mejiro, Tokyo. With the picture of a herd of 100 horses in the background, the former prime minister is said

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to have been quite satisfied, saying: "The only one who did not come was the prime minister." Tanaka will be judged in the Lockheed trial this fall. The Tanaka faction's leading members say: "Even if Tanaka is convicted, we will not be disrupted. Everyone knows that that would be disadvantageous."

Political stability has supported prosperity in Japan, and the core of this is the LDP. Within the LDP, only the Tanaka faction has been expanding, and no antimainstream current is found now. In the field of economics, "monopoly weakens economic vitality and leads to degeneration." What about politics....

Interview with Former Prime Minister Tanaka

"An Inevitable Mutual Aid System"

[Reporter] What is a faction ?

[Tanaka] There are no factions in the present LDP. There are only groups. Why is a group formed? It is simple. Because it is inevitable. It is inevitable because of the election system. As long as we adopt the medium-size electoral district system for the House of Representatives elections, group activity will certainly not diminish. If I campaign for Candidate A today and for Candidate B tomorrow in a five-seat electoral district, people will not allow it. To say, "Oppose the small electoral district system, do not form factions," is the same as saying abolish the LDP. If a politician wants to carry out his responsibility to the people, he must form a group or join a group. In conducting a big project covering complex and broad-ranging fields, how can one person do everything?

[Reporter] Why come to the Tanaka faction?

[Tanaka] Because they will be most satisfied in our group. The Tanaka faction brings together various experts. (The Tanaka faction) is a general hospital. It is natural that people want to come to a hospital that has doctors you want to consult with and nurses who listen to your slightly selfish requests. In our group we don't quit "like the doctor who goes back home when his regular hours are over." If someone asks for our help, we help him till the end. We have such warmth in our group. (The Tanaka faction) is a mutual aid system, which is an inevitable in a profession of great risks.

[Reporter] Politicians do a minimum of "collective bargaining." Even to become the LDP's executive council chairman, no to mention LDP president, you must be supported. In order to acquire a position and perform your function, it is fair to say that belonging to a group is more effective. Moreover, Tanaka himself has been prime minister once and does not have that ambition any more. If you have such a person as the foundation, you do not have to experience unpleasant things. It is the opposite of "thousands dying to raise one hero to fame."

[Tanaka] I began my political career at the age of 27, and I am already 63 years old. During my entire political career I have been in the midst of political upheaval. For 35 years I have been pitching. It is different from having been a critic behind the backstop. I am something like a school physician. I know the parents of a child from the time of his birth. I can understand him because I know "his father was this or that." That is why the second generation of politicians comes to join my group.

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[Reporter] How many more?

[Tanaka] There are five or six individuals who are now in the process of registration. By the end of this year the total membership will probably be 115. After the next election, the total number will be approximately 130. There are 34 or 35 who are planning to run for the first time in the next election. I can name them if you want me to.

[Reporter] What is the secret of managing a faction?

[Tanaka] In a very real sense, we have a basic policy of voluntary management. We cannot accomplish anything if we do not tell our members everything we know. Things move quickly today. I teach them all knowhow. Our economy has become an open economy.

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POLITICAL AND SOCIOLOGICAL

FACTIONAL DISPUTES WITHIN LDP RANKS DESCRIBED

Unrest Within Suzuki Faction

Tokyo SANKEI in Japanese 8 Dec 81 p 2

[Text] The Kochi-kai, the faction of Prime Minister and LDP President Zenko Suzuki, is being wracked by dissatisfaction over the recent cabinet reshuffle. This anger is mainly over the fact that Rokusuke Tanaka was appointed chairman of the Policy Affairs Research Council and that not a single new face was brought into the cabinet; that factional elders and leaders who were not chosen this time to join the cabinet share in this anger gives it its distinctive feature.

At one point, Kuniki Saito, the faction's executive secretary who served as Prime Minister Suzuki's chief adviser, was even forced to submit to an angry cross-examination. Some Diet members now go so far as to predict a "riot" at the faction's year-end party, which is scheduled for the 10th. By a "lightning" personnel shuffle, which he carried out under the slogan, "everybody gets to play ball," the prime minister has strengthened his prospects for reelection. At this rate, however, his first task apparently will be to put out the fire under his own feet.

The skill exhibited by the prime minister in this recent reshuffle drama was truly marvelous, and it brought the house down with cries of: "He's truly Mr Personnel!" and "He's even more skillful than former Prime Minister Sato!"

While his chief adviser, Saito, was strengthening relations with the Tanaka faction, Suzuki had Chief Cabinet Secretary Kiichi Miyazawa act as liaison with former Prime Minister Takeo Fukuda. The Fukuda faction took a hard line on the question of Mutsuki Kato joining the cabinet, and when its intention of having Executive Council Chairman Ryuo Tanaka withdraw from the cabinet-forming headquarters was revealed, the prime minister himself telephoned Chairman Tanaka and obtained his promise of cooperation. In addition, some of Suzuki's actions seemed to show that he was trying to drive a wedge between Fukuda and MITI Minister Shintaro Abe, the crown prince of the Fukuda faction. Great skill was exhibited not only in the selection of the cabinet, but also in moving ahead on the simultaneous selection of parliamentary vice ministers and party division chairmen as well.

This speedy way of doing things, however, created dissatisfaction among the elders of the Suzuki faction. Not only did the cabinet not include any new person from the faction, but the number of posts allocated to the Lower House was reduced by one.

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Added to their bitter feeling about this, the elders had thought, according to a factional leader, that Rokusuke Tanaka "should get no more than the chairmanship of the Diet Policy Committee," but their surprise turned to anger because "when the lid was opened, he had jumped three levels to chairman of the Policy Affairs Research Council."

One faction elder said that "the prime minister's personnel plan should not have been that different from the picture I had drawn. Without doubt, it was Saito who sketched Tanaka in as chairman of the policy affairs research council, since he was not there initially." This view quickly spread and appeared as belief in the "maneuvering of the Saito-Tanaka line." The elders and leaders of the Suzuki faction argued that "this was the arbitrary action of Saito, who spoke not a single word about it with us." Osanori Koyama and Iwazo Kaneko visited the prime minister at his private residence the day after the cabinet shuffle, 1 December, to speak with him directly. Following this, on the 2d, the factional leaders grilled Saito at the Suzuki faction office, and at the general meeting of the faction on the 3d, they obtained the promise that, "in the future, decisions will be made in consultation with the faction's leaders, with Koyama acting as the supreme adviser."

The effects of this were quickly felt in the selection of the vice chairman of the Political Affairs Research Council. Former Minister of Agriculture, Forestry, and Fishing Kabun Muto, a follower of Finance Minister Michio Watanabe, put his name at the top of the list of candidates for vice chairman by going so far as to cut his ties with the Nakasone faction. No sooner had he done this than the name of Takeo Nishioka, who is close to the chairman, Rokusuke Tanaka, was being mentioned as Muto's rival. And so it went, around and around. Ultimately, however, Saito gave in to the strong wishes of the Kochi-kai elders and settled on Haruo Kino, a leader of the Suzuki faction. This is generally viewed as a rebuff of Chairman Tanaka by the elders. One Suzuki faction leader coolly said that "it will be difficult for Tanaka to use someone of a different hue such as Kino. In the end, Tanaka probably will have to run around by himself handling such matters as drawing up the budget."

Those who were involved in this Suzuki faction unrest hold, as one elder put it, that "Saito is the right man for factional affairs, so we have no objection to his appointment as the senior leader." However, the anger directed against Policy Affairs Research Council Chairman Tanaka is such that it cannot be easily softened. The same elder said that "we gained by creating a disturber." Some say that "Miyazawa must surely resent the fact that the result of his loyal service to the prime minister was to see Tanaka move out in front of him." Other worrisome statements are making the rounds, with some even saying that "this time, for sure, Miyazawa will begin his countermeasures against Tanaka in earnest, and no matter whether Tanaka's 'brawn' or Miyazawa's 'brains' wins, nothing can be done about the Kochi-kai breaking apart." In the midst of all this, Saito visited the prime minister's official residence on the afternoon of the 7th to confer with the prime minister on remedial measures. Contrary to the prime minister's plans, the recent cabinet shuffle seems to have further intensified the "Tanaka-Miyazawa War."

## Focus on LDP Vice-Presidency

Tokyo SANKEI in Japanese 9 Dec 81 p 2

[Text] Now that the cabinet shuffle is over, the Nikaido administration in the LDP has been inaugurated, and the division chairmen of the Policy Affairs Research

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Council have been chosen, the question of whether to appoint a vice president in the LDP has surfaced as a new focus of attention. The Fukuda faction's deep-seated dissatisfaction with the recent personnel changes, which are said to "favor the Tanaka faction," seems to be at work behind this issue of the vice president. The Tanaka faction, though, is not interested in pursuing this matter, so it seems that there will be a number of twists and turns before a decision is reached.

The question of a vice president arose with the prime minister's statement at a press conference the day after the cabinet shuffle, in which he said that "we are considering whether to appoint a vice president. We want to make the decision before the party conference (in January)." The selection of a vice president is a matter for the party conference, so it is natural that such a decision would be made before the conference. However, because the question of appointing a vice president had not been discussed within the party, some people took this statement by the prime minister to be "a hint that a vice president would be appointed."

The quickest reaction to this statement came from the Fukuda faction. Immediately following the prime minister's press conference, former prime minister Takeo Fukuda said: "When I mentioned it to Prime Minister Suzuki (in their meeting on 30 November), he said he would give it serious thought." Thus, Fukuda expressed approval of the idea of appointing a vice president. Moreover, the leadership of the Fukuda faction had been checked by the Tanaka faction-dominated party management, including LDP Secretary-General Susumu Nikaïdo and Assistant Secretary General Noboru Takeshita, which claimed that "the concentration of power could not be eliminated."

The fact that the leadership of the Fukuda faction took this kind of posture meant that it was concerned with the administration of the party being dominated by the Tanaka faction. Should a vice president come from the Fukuda faction, the three top party offices would then be filled by one person from each of the Tanaka, Suzuki, and Fukuda factions, and the chairman of the party's Assembly of Members of the House of Councilors would be the Fukuda faction's Kingo Machimura. With this kind of lineup, one would have to say that, on the contrary, there was "a concentration of power in the Fukuda faction." One Fukuda faction leader said that "Tadao Kuraishi would be a good choice for the Fukuda faction." The faction seems to be "holding its breath."

Then, however, the name of Nadao Hirokichi appeared. With a reputation for being a fair man of high character and, moreover, with no factional affiliation within the LDP, he was perfect for the post of vice president. Also, Nadao is on such good terms with the Fukuda faction that, during the "40-day struggle" in 1979, former Prime Minister Fukuda at one point proposed that he serve as a "temporary prime minister." The feeling, as expressed by one party leader, is that "Nadao is perfect for the post of vice president. No, I should say that, if a vice president is to be appointed, then by process of elimination, only Nadao would be right for the job."

Seeing that discussion of this question was growing more active, on the 8th a majority of those in the House of Councilors' steering committee supported the view that "if the House of Representatives was to provide a vice president, one should come also from the House of Councilors." This action resulted from the fact

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that when the party's rules were revised last year, the rule which stated that "one person can be appointed vice president" was changed at the wish of Upper House members who wanted it possible for a vice president to come from the House of Councilors as well. The revised rule stated that "vice president(s) may be appointed," and it left room for a vice president from the Upper House. Even here, talk has escalated to the point where councilors say that "if the vice president is to come from the House of Councilors, Upper House President Ken Yasui is the only suitable person." Yasui, however, is from the Fukuda faction and so would pose the same problems as Kuraishi.

In this intraparty debate, the Tanaka faction is clearly against the whole idea, and as one of its leaders put it, the faction holds that "there is no need to have a vice president with the present party administration." Because, in terms of "status," a vice president would be above the secretary general, the Tanaka faction would "not agree to having a 'heavyweight' placed above Secretary General Nikaido."

Nikaido, therefore, was also cool to the idea, saying: "I heard the prime minister say that 'because such a question will come up at the press conference, I will state that a decision will be made by the time of the party conference.' However, he has not consulted with me (on the question of a vice president)." The secretary general intends to learn from the prime minister his true intentions concerning this matter. The prime minister, however, as in the case of the strategy he used in the recent cabinet shuffle, seems to be waiting to see what will happen in the intraparty debate between the Tanaka and Fukuda factions.

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POLITICAL AND SOCIOLOGICAL

EARLY START OF GENERAL ELECTION CAMPAIGN NOTED

Opposition Parties' Preparations

Tokyo NIHON KEISAI SHIMBUN in Japanese 19 Jan 82 p 2

[Text] Judging that dissolution of the House of Representatives is possible within the year, every opposition party is hastily trying to prepare for a general election. The Komei Party has already begun to make specific preparations for a general election on the assumption of Lower House dissolution within the year. The Socialist Party will start serious preparations after the party convention in February.

At first, the opposition parties adopted the slogan "Decisive Political Battle in '83," anticipating that, in addition to unified local elections and the House of Councilors election, a general election might be held next year. However, starting late last year rumors of dissolution within 1982 have been spreading within the LDP. Then some of the leading members of the opposition parties started shouting the slogan "Decisive Political Battle in '82." On the dissolution within a year view, the opposition parties strongly supported the observation that "the LDP's Tanaka faction started the fire and the Komei Party has been fanning it" (a leading member of the Democratic-Socialist Party). The story has spread that Chief Secretary Yano of the Komei Party, who had been back home (the Fourth District of Osaka Prefecture) since the end of last year, returned to Tokyo much earlier than his original plan because of preparations for a general election. This story has spurred all the opposition parties to prepare for a general election.

In relation to the Diet dissolution within a year view, the observation that a verdict on former Prime Minister Tanaka would be handed down this year has found strong initial support among the opposition parties. However, they are now revising their observation on the timing of the verdict from this year to next year. Their analysis is as follows: "(If Tanaka is convicted,) the LDP would be in a disadvantageous position, should the general election be held after the verdict. Then, the LDP cannot dissolve the Diet for a while. If dissolution is to occur in the near future, it must be this year before the judgment in the Lockheed trial. It will be either before or after the LDP's presidential election in November" (a leading member of the Socialist Party).

The reasons for speculation are not limited to the Lockheed trial. One leading member of the New Liberal Club made the following observation: "The revenue defect of the FY-81 general account budget will eventually be made clear and it will become

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obvious that the real economic growth rate of 5.2 percent predicted by the administration for FY-82 will be difficult to achieve." He concludes that the Suzuki administration will be driven into a tight corner economically as well. There is also the view that Economic Planning Agency Director Komoto is very likely to resign his cabinet post during this Diet session. This may trigger the rise to the surface of LDP factional struggles, thereby disturbing the political situation. In order to retain power the Suzuki administration may have to dissolve the Diet. Some hold such views.

The Komei Party, which has been working since last year on selection of official party candidates, started to accelerate the pace of this work after the turn of the year. On the other hand, the Socialist Party will start serious preparations after the party convention scheduled for 4-6 February. It is hoped that the party's Central Executive Committee will request each prefecture's main party branch to select official candidates soon and conduct the first screening of nominations for official candidacy by April at the latest. Other parties are all trying to hasten the selection of official candidates too. Both the Democratic-Socialist Party and the New Liberal Club intend to start preparations, including electoral cooperation among middle-of-the-road forces.

However, among the opposition parties there are also those who question the grounds for Diet dissolution within the year. Some observe as follows: "The possibility of Diet dissolution within the year is one out of ten thousand. We hear from the LDP's Fukuda faction that 'We will not let the administration dissolve the Diet. We will force them into a change of administration.' A change of administration is more likely than dissolution" (a leading member of the Democratic-Socialist Party). The opposition parties were defeated in the unexpected double elections the year before last and fell into a condition of political asphyxiation. The bitter experience of the double elections seems to live on in the preparations for the next general election.

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LDP Preparing for Elections

Tokyo YOMIURI SHIMBUN in Japanese 4 Jan 82 p 2

[Text] From the beginning of this year the LDP already began to prepare for the elections that are being focused upon as the "Decisive Political Battle in '83," the unified local elections in the spring and the House of Councilors election in the summer. For the LDP, "which does not burn until the last minute" (the party campaign headquarters), this is an unusually early action. The background for it is the political judgment that: 1) it cannot completely deny the possibility of a double election for both houses recurring; 2) it must be ready for the restricted-namelist-type proportional representation system which will be applied to nationwide electoral districts in Upper House elections at some time in the future; and 3) it should establish the leadership of Party Secretary General Nikaido, who manages the party. This "headstart" by the LDP, which is aiming at acquiring an absolute majority in the Diet, seems to have stirred up the opposition parties.

The Tanaka faction became the mainstay of the LDP when Nikaido and Takeshita were appointed secretary general and deputy secretary general in the party personnel change of last 30 November. Since then, the movement toward preparation for two major elections

in 1983 has suddenly become obvious. Among other things, Deputy Secretary General Takeshita is, as admitted by both himself and others, the LDP member best informed about elections. "If an election campaign led by the Nikaido-Takeshita line suffers defeat, the leadership of Secretary General Nikiado would be damaged" (a leading member of the Tanaka faction). This is the reason for the early start to preparations.

At the same time, based on "a lesson" from the great victory of the 1980 double election in which the LDP obtained absolute majorities of 287 seats in the House of Representatives and 135 seats in the House of Councilors, some LDP members still strongly hold the opinion that the Lower House election should be held simultaneously with the Upper House election in 1983. Moreover, one outlook also holds that "voices among the people are certain to ask that 'Prime Minister Suzuki call for a vote of confidence' in 1983" (a middle-level member of the Nakasone faction) if he is reelected this fall.

On the other hand, what has emerged in the forefront as a factor accelerating preparation for elections is the restricted-namelist-type proportional representation system applied to the nationwide districts in the Upper House election. Prime Minister Suzuki has showed a strong intention to adopt the system for the Upper House election of 1983. Therefore, the LDP campaign headquarters is forced to "deal with unfamiliar measures as an election preparation" (the LDP campaign headquarters).

The party campaign headquarters has already had (what Mr Takeshita called) "a study meeting" for campaign headquarters' executive secretaries late last year. It started reviewing the "Campaign Outline" and the "Candidate Selection Standards." It also started a series of meetings explaining the restricted-namelist-type proportional representation system to newly appointed party officials.

In the near future it also plans to instruct prefectural LDP main offices to set up campaign headquarters. The party campaign headquarters and each prefectural LDP main office first screen nominations of official candidates. They hope to announce the results of the first screening by July.

However, while supporting early preparations for elections, some members in the LDP are on guard against a campaign being carried out at "the pace of former Prime Minister Tanaka, who is behind Secretary General Nikaido and Deputy Secretary General Takeshita" (a leading member of the Komoto faction). Former Prime Minister Tanaka led all members of the Tanaka faction to the front in the Tokyo metropolitan elections last July and managed the election campaigns of metropolitan assemblymen. Since he has "a past record," the influence of former Prime Minister Tanaka through the Nikaido-Takeshita line will be reflected in the two major elections of 1982. This view is strongly supported among LDP members.

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MILITARY

PRODUCTION OF U.S. 203-MM HOWITZER PARTS

OW091305 Tokyo JIJI in English 1245 GMT 9 Feb 82

[Text] Tokyo, Feb 9 (JIJI Press)--Japan and the United States Tuesday exchanged notes on the Japanese license production of the U.S. Army's 203-millimeter howitzer.

Foreign Minister Yoshio Sakurauchi and William Clark, Jr., minister-counsellor at the U.S. Embassy in Tokyo, affixed their signatures to the notes.

This is the 33rd exchange of notes based on the 1954 Mutual Defense Assistance Agreement (MDA) between the two countries.

The 203mm self-propelled howitzer will be introduced by the Ground Self-Defense Force (GSDF) as its main firepower artillery in the future.

It has a sufficiently long range to cover distant areas not within the reach of the existing types of artillery in the possession of GSDF.

GSDF was authorized to procure six units of the howitzer in the fiscal 1981 budget and is requesting to procure 13 more such units in the fiscal 1982 budget. The Japanese fiscal year starts in April.

The government has originally planned to acquire a U.S. approval for the 100 pct license production of the howitzer, but Washington refused to provide technology for manufacturing its tube.

Moreover, U.S. Congress passed a bill sponsored by Samuel Stratton (D-M.Y.) toward the end of last year, which barred the transfer to foreign countries technology developed at U.S. military plants producing large-caliber artillery. As a result, it became impossible for Japan to get technology for manufacturing the muzzle break and the breech mechanism of the howitzer.

Under a detailed arrangement to be signed between the defense agency and the U.S. Defense Department based on the notes, Japan will be able to produce under the U.S. license only the chassis and the fire control equipment of the howitzer.

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MILITARY

ISRAEL USES JAPANESE-MADE PATROL CRAFT

OW081403 Tokyo THE DAILY YOMIURI in English 7 Feb 82 p 1

[Excerpt] Four speedboats exported by a Japanese company to Israel are being used as armed patrol boats by the Israeli Navy in violations of Japan's three-point ban on the export of weapons since Israel is in a state of belligerency with Arab states, it was learned Saturday.

The four speedboats were introduced in the 1981-82 edition of Jane's fighting ships as "Kedma" class coastal patrol craft. They carried 20-millimeter machine guns.

Each boat, made of reinforced plastic, displaces 32 tons, measures 20.4 meters and is equipped with a pair of diesel engines with a combined output of 1,540 bhp. They have a cruising speed of 25 knots.

They were constructed by Toei Boat Company, a former shipbuilding company in Yokosuka, Kanagawa-Ken, between September 1967 and July 1968.

Transport Ministry officials said the boats, which were ordered in the name of the Israeli Customhouse, had been exported at the time but the machine guns were mounted by the Israelis after delivery.

The boats had no gun emplacements on them when they were exported, they said.

However, when the boats were being examined for export validation, there was a controversy within the government over the propriety of selling such high-performance boats to Israel in the light of the government's three-point ban on the export of weapons.

The three-point ban on weapons export is that Japan may not export weapons to (1) the communist bloc, (2) countries to which exports of weapons are banned by the UN and (3) countries involved in an armed conflict or likely to be involved in an armed conflict.

Toei Boat Company, established about 1965, was a leader in the construction of reinforced plastic boats but went bankrupt in December 1978 in the shipbuilding depression following the oil shock.

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MILITARY

BRIEFS

ARMS SALES TO U.S.--Kyoto, Feb 9 (JIJI Press)--An influential businessman Tuesday came out in favor of weapons sales to the United States. The government should permit exports of weapons to the United States, if Japan's Pacific ally needs them, said Hosai Hyuga, chairman of the Kansai (Western Japan) Economics Federation. He told a gathering of the Kansai business community here that the government should also allow the supply of military technology to the United by narrowing down the application of the nation's three principles banning arms exports, since it forms part of cooperation under the bilateral security treaty. Japan, which has the war-renouncing constitution, maintains a total ban on exports of weapons to communist countries, nations subject to the United Nations arm embargo, and countries involved or in danger of getting involved in international disputes. [Text] [OW091441 Tokyo JIJI in English 1417 GMT 9 Feb 82]

NUCLEAR TECHNOLOGY EXPORTS--At a 22 January cabinet session, the Japanese Government decided that "it is inconceivable for Japan to export nuclear weapon parts or technology usable in manufacturing nuclear weapons because Japan is committed to three non-nuclear principles." The government will state this view when it replies to a question previously raised in the Diet by Komeito dietman Shozo Kusakawa concerning the issue of military technology exchange between Japan and the United States. The Japanese Government is now in the process of formulating a uniform stand that "military technology exchanges between Japan and the United States are possible under the security treaty." However, the view adopted at the 22 January cabinet session means that technology which may be used in making nuclear weapons will be excluded from military technology exchanges. In a reply to Kusakawa's question, the government will also express the view that the U.S. forces in Japan are free to procure arms and military technology inside Japan under the Japan-U.S. status of forces agreement. However, concerning the U.S. request for Japanese military technology, the Japanese Government plans to deal with the request in accordance with Article 3 of the security treaty, not the status of forces agreement. [Text] [OW241904 Tokyo NIHON KEIZAI SHIMBUN in Japanese 22 Jan 82 Evening Edition p 2]

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ECONOMIC

NATION'S PER CAPITA GNP TO TOP U.S. IN 2000

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 pp 1, 19

[Text]

Japan's population in 21 Century will age to a degree equivalent to those in West European countries and its per capita gross national product will top that of the U.S.

This was revealed in preliminary estimates made by the Government's Economic Council in its work to complete a long-range outlook of Japan's economic society by this May.

Some of the salient points of its estimate as to 2000 are:

—Those of 65 or older will comprise 15.6 per cent of the population, compared to only 9.0 per cent in 1980.

—Japan will come to occupy 13 per cent (10 per cent in 1980) of the world's GNP, and its per capita GNP will become 1.2-fold that of the U.S.

According to the preliminary estimate, the population growth is going to dip in the future. In the five years, from 2000 to 2005, the growth will average 0.29 per cent yearly, greatly down from the 0.87 per cent for the five years from 1975 to 1980.

Furthermore, from 2005 to 2010, the growth rate will fall to 0.04 per cent. The population will nearly level off, and in the five years from 2010 to 2015, the growth will turn to a minus 0.15 per cent.

Along with such a trend, the share of people of 65 or over in the total population in 2000 will

climb to 15.6 per cent from the 9.0 per cent in 1980. Aging of the population will further grow to 21.1 per cent in 2015, or "attain a high level of aging unexperienced as yet by any nation in the world," it is predicted.

With the emergence of the high-age society, the relationship of burden from one generations to another is going to change. With the increase of the aged, the working generation will be called on to assume a larger burden of obligation to pay for the annuity and social insurance of the aged.

Moreover, the work force will assume a more middle age and elderly character, and hiring practices will have to change. The rate personal savings will come down as there will be more elderly people drawing on their savings for living, and there is strong likelihood that the nature of consumption expenditure and living will also change.

The estimate figures that Japan has the capacity to attain an economic growth of about 5 per cent yearly or slightly higher than that of the other industrially-advanced nations.

Its reasons are: 1) The level of Japan's technological level, supported by self-development power and other factors, will surpass that of other nations; 2) The people's savings rate will continue to maintain a

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## Population, Growth, Income in 2000

	Population (million)		% in world GNP		Per capita GNP (1980 Japan = 100)	
	1980	2000	1980	2000	1980	2000
<b>West industrialized nations</b>						
Japan .....	117	129	10.0	13	100	240.6
	(2.7)	(2.2)				
U.S. ....	219	234	21.8	19	116.5	196.9
	(5.0)	(4.0)				
EC, other OECD nations .....	389	418	29.9	26	89.9	151.2
	(8.9)	(7.1)				
Total .....	725	781	61.7	58	99.6	179.6
	(16.5)	(13.2)				
<b>Communist Bloc nations</b>						
U.S.S.R., East Europe etc. ....	399	441	18.6	18	54.5	98.2
	(9.1)	(7.4)				
China .....	938	1,176	4.6	5	5.7	9.1
	(21.4)	(19.9)				
<b>Middle-income, and less developed countries</b>						
.....	2,322	3,524	15.1	19	7.6	13.0
	(53.0)	(59.5)				
<b>Grand Total</b> .....	<b>4,384</b>	<b>5,922</b>	<b>100.0</b>	<b>100</b>	<b>26.7</b>	<b>40.6</b>
	(100.0)	(100.0)				

Note: ratio to the total population in parentheses

level higher than that of the other advanced nations.

As for the U.S., the European Communities and other OECD nations, they will record an economic growth of 3 per cent, each, the middle-income countries a growth of 7 per cent, the other developing nations 4 per cent, and the Communist Bloc nations a growth of 3.5 per cent.

As a result, the share of the Japan's GNP in the world's

GNP will climb from the 10 per cent in 1980 to 13.0 per cent in 2000. Japan's per capita GNP will also rise from the \$8,940 in 1980 to \$21,510 in 2000 as to surpass America's \$17,600.

The estimate says Japan's role in the Free World further will grow as along with its higher position in the world economy, the positions of the U.S. and EC correspondingly coming down.

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ECONOMIC

## TOYOTA MOTOR, SALES ARM WILL MERGE IN JULY

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 991, 2 Feb 82 pp 1, 15

[Text]

Toyota Motor Co., the world's No. 2 automaker, and its marketing arm, Toyota Motor Sales Co., announced last Monday they had decided to merge as of July 1, this year after more than 32 years of separation.

At a press conference in Nagoya, TMC President Eiji Toyoda and TMSC President Shoichiro Toyoda said they had signed an agreement to merge into a new firm, to be named as Toyota Motor Co., Ltd., under terms yet to be worked out.

The two presidents said the merger was decided to "tide over the intensifying global war" in the small car business and mounting protectionism in overseas markets. They said the two inseparable functions of production and marketing must be performed in an "integrated and flexible manner" to ensure further development of the group.

According to the agreement, the merger will take place possibly on July 1 on an equal basis, but for formality, it will take the form of TMC, Japan's biggest automaker, taking over TMSC. That is, the new company will take over all TMSC employees which number 5,161 against TMC's 48,757.

The final date of merger will be decided after the two companies study stock prices, the value of assets and other technical matters to determine the

merger ratio. Other details to be worked out include the new management and capitalization of the new company, officials of the two companies said. The two companies will set up a preparatory organ for the merger to study the details and will sign the merger contract in mid-March. Then, they will hold an extraordinary stockholders' meeting in mid-May to seek approval of the merger and plan to hold the stockholders' meeting of the new company in late September.

Industry observers said TMSC President Shoichiro Toyoda is likely to assume the presidency of the new company with TMC President Eiji Toyoda assuming board chairmanship. Before the merger, a massive reshuffle of leading personnel of the two companies will take place, officials said.

In 1950, TMSC was set apart from its parent TMC in an attempt to overcome TMC's management crisis at the time. Since then, the two companies have grown into Japan's top automaker and its marketing arm under the leadership of TMC's Taizo Ishida and TMSC's Shotaro Kamiya. The merger will come after 32 years of the separation. Both presidents judged there is "no merit" in the separation now.

The merger will give birth to Japan's biggest auto manu-

facturing entity with annual sales totaling more than ¥4 trillion. TMC, capitalized at ¥100.7 billion, reported sales of ¥3.5 trillion in its business year ended June 30, 1981. TMSC, capitalized at ¥23.7 billion, reported sales of ¥3.6 trillion in its year ended last March.

The net worth ratio to the expected total capital of the new company will be 50.3 per cent, compared with General Motors Corp.'s 50.7 per cent and Nissan Motor Co.'s 45.5 per cent, but is very likely to become higher when various measures are taken after the merger.

Moreover, the expected pre-tax recurring profits of the new company will reach ¥337.5 billion, far ahead of Japan's No. 2 maker, Nissan Motor Co. (¥183 billion). But TMC officials said the new company is still far behind the world's top maker, General Motors Corp., in terms of sales, size and capital.

Informants said that Toyota wishes to catch up with GM. GM is presently spending \$40 billion to develop small cars in an attempt to secure a 25 per cent share of the world's car market as its "world car strategy." On the other hand, Toyota is trying to acquire a 10 per cent share of the market as a part of its world strategy in the future. In 1980, Toyota accounted for 8 per cent of total

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production of cars in the world and hopes to boost it by 1 per cent this year. Up until recently, Toyota has been successful in setting up superb assembly lines and exporting excellent and cheap cars all over the world.

But with the start of the 1980s, the "war" in the small car business has intensified worldwide, and protectionism in overseas markets has mounted. Japanese automakers have been forced voluntarily to restrain car exports to the U.S., West Germany and other European countries. Developing countries also are trying to set up their

own auto manufacturing plants, thereby threatening Japanese market shares in those countries.

Faced with this challenge, the two Toyota companies realized that separation of car production and marketing was effective for expanding assembled car sales but not suited for promotion of their international strategy. The two companies had differed also over "world strategy." Thus, the merger is an attempt to eliminate this discord and promote a united Toyota world strategy, it was said.

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ECONOMIC

BRIEFS

U.S. TARIFFS--The Japanese Government disclosed on 2 February that it will file a complaint with GATT concerning the drastically increased U.S. tariffs on imported small Japanese trucks because they violate GATT provisions. This will be the first time Japan has ever appealed to GATT against the United States, or on a trade issue for that matter. Japan will argue that "this tariff increase is import-restrictive by nature and hence is in violation of GATT provisions." The United States has battered Japan with strong demands over economic frictions between the two countries, and Japan intends to bring any unreasonable punitive measures to the attention of international organizations. In September 1980 the governments of Japan and the United States began informal bilateral negotiations on the U.S. tariffs on small Japanese trucks, but the two sides remained in disagreement throughout the subsequent negotiations, making it necessary to seek mediation through GATT, a third party international organization. Thus, the issue was brought before GATT in July 1981 for "formal negotiations" under Article 22 of the GATT agreement. However, these formal negotiations have failed to settle the issue. Therefore, the Japanese Government, having given up hope of finding a solution through negotiation, has now decided to file an action with GATT. Japan will file a complaint when the GATT Executive Council meets in Geneva in mid-February. [Excerpt] [OW080403 Tokyo YOMIURI SHIMBUN in Japanese 3 Feb 82 Morning Edition p 1]

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SCIENCE AND TECHNOLOGY

GOVERNMENT TO RUN SHORT OF ENERGY DEVELOPMENT FUNDS

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 pp 1, 19

[Article by Shigeru Komago]

[Text] The Japanese Government will be short of funds in financing the development of oil, coal, nuclear power and other energy sources in the future, it was revealed last week.

According to informed sources, preliminary calculations indicated that as things stand now, the Government will be faced with a shortage of ¥4 trillion of about ¥14 trillion needed to achieve a provisional plan for long-term energy supply and demand for the next 10 years. Sources also said risks and other problems involved in the development make it difficult to procure funds from the private sector to compensate for the financial shortage.

Consequently, observers warned that research and development of nuclear-related projects such as the construction of nuclear reactors and uranium enrichment may be delayed because of the unforeseen lack of funds. They have urged the Government to clarify priorities in energy development and review the plan for securing funds for achieving the provisional long-term energy plan which was mapped after the 1979 Tokyo Summit as a guideline for promoting Japan's policy in the future.

The Government is already short of funds in this fiscal year for energy development, hit hard by lagging oil-related tax revenues arising from the oil glut and stabilized crude oil prices. As a result, the Japan Petroleum Development Corp. decided to urge the Government to secure all funds needed for the construction of oil storage facilities from the private sector. Preliminary calculations show this lack of funds become increasingly acute as the years pass.

According to calculations, about ¥102 trillion is needed for the next ten years (1981-1990) and ¥163 trillion for the next 15 years (to 1995) to achieve the provisional plan for long-term energy supply and demand. That plan stipulated that the dependence on imported oil in overall energy needs must be reduced from the present 70 per cent to 50 per cent in 1990 and 43 per cent in 1995.

Out of ¥102 trillion yen needed for the next 10 years, power generation occupied the most needs, accounting for 65 per cent or ¥66 trillion of the total, which will be procured mostly from the private sector. Thus, Government funds of ¥14 trillion expected to be offered for the next 10 years account for only 10 per cent of the total.

Even under this prospect, the Government needs an annual average of 1.6 times the present outlay of ¥860 billion allocated to energy development.

In spite of those financial needs, preliminary calculations indicated that the government could secure only ¥10 trillion for the next 10 years from oil-related tax revenues even on the assumption that oil prices will go up by 5 per cent in real terms for the next 10 years. This indicates that the Government's provisional plan for long-term energy supply and demand was mapped without any consideration of the funds needed to achieve it.

Sources said it is difficult to procure from the private sector funds which could not be generated by the Government. Preliminary statistics say the funds expected to be procured from the private sector for the next 10 years will total ¥90 trillion. As things stand now, there is little possibility of securing that ¥90 trillion from the private sector. For example, the electric power companies' corporate bonds, considered to be the major income-generating means, occupy about 80 per cent of total corporate bonds and their issuance is likely to be suppressed in the future. Furthermore, funds to be secured from

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the private sector fluctuate up and down, depending upon the monetary policy at the time. This presents a serious impediment to a stable long-term intake of funds in the coming years.

On the other hand, the Government is forced to procure funds by issuing Government bonds for other fields than energy, and the Japanese National Railways, the Japan Highway Public Corp. and other Government bodies are obliged to generate funds from the private sector to carry out their projects. Under these circumstances, if additional funds are needed to meet the financial needs of energy development, there might be an adverse impact on the private sector's plan for capital investment.

According to calculation, the research and development of

nuclear-related projects depends most on the Government funds for the next 10 years. This is because it will take time and money to commercialize the new reactor replacing the present lightwater type and uranium enrichment and risks involved in development are too high, counting on 90 per cent of necessary funds from the Government.

Because of this expected shortage of funds, observers say energy development may be delayed and left behind the "new energy era" centering upon atomic power in the 80s, posing a serious obstacle to Japan's economic and energy security. Consequently, observers said it is necessary to scrap or newly map out the energy plan from time to time and reorder priorities for the more efficient use of government funds, and further review the provisional plan for long-term energy supply and demand at the earlier date.

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SCIENCE AND TECHNOLOGY

LASER BEAM CUTTER USING OPTICAL FIBER CREATED

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 991, 2 Feb 82 p 13

[Text]

A laser-beam metal cutter able to send its hot slicing beams through optical fiber to a metal object has been developed by Toshiba Corp. of Tokyo.

According to the Japanese electronics maker, its new YAG (yttrium-aluminum-garnet) laser, believed to be precedented as a metal processing laser device, can cut through a 4-millimeter-thick sheet of steel with a slash width of 0.5 mm and a 2-mm-thick sheet with a slash width of 0.25 mm. Such results were attained when the metal objects were placed 20 meters away. The laser can also cut through a 1-mm-thick sheet of silicone substrate to make electronic circuit wafers in a chamber filled with some inactive gas.

The YAG laser emitting an infra-red ray of 1.6 microns in wave length sends its beams through a quartz type of optical fiber line measuring 1.2 mm across in outer caliber and 0.8 in light-passing inner caliber.

Such industrial cutting lasers using optical fiber lines, unlike the existing surgical laser knives also utilizing fiber optics, had been considered difficult to develop because of the high heat energy output of the laser. The beam-entering end of the line had been found to be easily damaged by the beam and the beam-exiting end also by the strong reflection of the beam from the object. The company has solved the problem by devising a special heat-radiating copper device for both ends.

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SCIENCE AND TECHNOLOGY

JITA TO PUSH PATENT SALES OVERSEAS

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 991, 2 Feb 82 p 13

[Text]

The Japan International Technology Association, a non-profit nationally-owned technology and knowhow licensing mediation service, recently said it will promote internationally its services with Mitsui & Co. of Tokyo, a leading trading company.

The association, affiliated with the Ministry of International Trade & Industry (MITI), will be the second Japanese service to accelerate international licensing of knowledge to follow up a like endeavor recently started by the Research Development Corporation of Japan, a similar Tokyo service, affiliated with the Science and Technology Agency of the Prime Minister's Office, in tieup with Mitsubishi Corp. of Tokyo, Mitsui's rival.

The latter is handling all sorts of Government-owned patented or patent-pending technology or lesser know-

how under the jurisdiction of Government ministries, etc.

The Japan International Technology Association is in charge of all kinds of such technology or knowhow under the jurisdiction of MITI's Agency of Industrial Science and Technology. Pooled in the association's file are some 12,000 pieces of such information, annually growing by about 700, and coming from some 16 research institutions and other places in the agency's care.

Domestically, the association, during the past decade, had channeled about 1,300 pieces of information licensing to industrial firms, annually earning some ¥300 million for the Government in royalties and fees. Internationally, it had intermediated in such licensing of only 12 pieces. Thus, it has seen the need for international promotion of its

work to help correct Japan's technology trade deficits, though it is still short of support because few Japanese recognize such a need except for covering huge investments of taxpayers' money in research.

The association has agreed with Mitsui to launch its new drive by making the most of the latter's global business information gathering-supplying service network, especially considering the latter's recent successful assistance in licensing the MITI agency's controlled Fermentation Research Institute's method of boosting sugar productivity by a special enzyme (melibiase)-using process of cracking raffinose, a kind of molasses in beet sugar refinery wastes.

The technology was licensed to Great Western Sugar Company and Holly Sugar Corp., both of the U.S..

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SCIENCE AND TECHNOLOGY

'ASAHI' URGES NATION'S EFFORTS FOR ANTARCTIC ORDER

OW040953 Tokyo ASAHI EVENING NEWS in English 3 Feb 82 p 7

[ASAHI SHIMBUN 2 February editorial: "Antarctic Diplomacy"]

[Text] Japanese scientists began making observations in Antarctica 25 years ago, and the scale of operations there has grown enormously. The Showa Base is now over 20 times its original size. A quarter of a century ago, it consisted of four buildings and covered about 180 square meters. Now it consists of 38 buildings and covers 3,900 square meters.

The results accumulated by Japan's scientific observation teams over this period have been significant. In research into auroras, for instance, they have used various methods, including the launching of rockets into the centers of these atmospheric phenomena. In this field, Japan leads the world. In addition, the discovery by Japanese teams of large meteorites in Antarctica has nearly doubled mankind's stock of these things.

Antarctica is often called earth's window on the universe by people who attach great importance to making scientific observations in Antarctica, a unique place where auroras occur as particles from the sun fall into place along the earth's line of magnetic force.

But the significance of observations in this region go beyond the strictly scientific. Antarctica is also known as earth's window on the future. For instance, by analyzing the continental ice there, we can determine climatic changes in the past. There are warnings that the temperature of the earth will increase in the future because of the large amounts of carbon dioxide that are building up in the atmosphere as a result of the vast consumption of fossil fuels and deforestation. It may be possible to verify whether this is happening by analyzing changes in the size of the polar ice cap. Antarctica also acts as a measure of the extent of the pollution of the earth: traces of PCB (polychlorinated biphenyl) have been detected there.

But Antarctica has an even more important function: it represents a model region for a new international order. Under the Antarctic treaty of 1961, its use for military purposes is prohibited, no nations are allowed territorial

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rights there, and the freedom of scientific observation and the promotion of international cooperation there are upheld. Behind the promulgation of the treaty was the desire to realize, partially at least, the ideals of mankind.

In recent years, however, problems have arisen in connection with the region's natural resources. A convention has been concluded which deals adequately with the question of organic marine resources, but with respect to mineral resources there was only an agreement to work quickly toward a convention on exploration and development. At present, however, there are no prospects that such a convention will be agreed upon.

At an international conference last year, it was decided to establish a special committee for the purpose of drafting a convention; its first meetings are to be held this year in New Zealand. There will inevitably be difficulties because the prospect of mineral resources being found is encouraging claims to territorial rights which had been considered impossible under the Antarctic treaty.

Should these negotiations prove to be prolonged, the review of the Antarctic treaty, which is to take place 10 years hence, may run into difficulties. The question whether the establishment of an international order in Antarctica progresses or retreats may be seen as a test case that will determine mankind's future. This order must not be allowed to falter.

In this connection, Japan should make greater diplomatic efforts. Since it has renounced any territorial claims in Antarctica, Japan is in a position to encourage the promulgation of a new treaty, and its scientific successes in the region will give considerable force to its voice. Japan is in a good position to act as a mediator in this respect.

It is important that a domestic organization be established for this purpose first. A situation such as the one surrounding the 1964 report on the preservation of Antarctic fauna and flora must be avoided. At that time, cooperation among the government agencies was poor, the preparation of domestic laws was delayed and today Japan is the only country not to have approved the report's recommendations.

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SCIENCE AND TECHNOLOGY

FACILITIES COMPLETED FOR INTERFERON PRODUCTION

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 991, 2 Feb 82 p 11

[Text]

Takeda Chemical Industries, Ltd. and Nippon Roche K.K. have completed facilities to produce large volumes of interferon for clinical trials. Their recently completed facilities are designed to produce 1 trillion units a month, each. The mass production will pave the way for trial uses for about 5,000 cancer patients.

Their sample alpha-interferon (produced by means of genetic engineering) was shipped to Hoffmann La Roche, with the U.S. company so far detecting no problems with Takeda's and its subsidiary's interferon qualities. The final confirmation of qualities is likely to lead the two firms to supply their interferon to the Government's clinical trials, starting in the autumn this year.

Until now, when genetic engineering method generally was

not applied, no large volumes of interferon were available for large-scale clinical trials. In conventional technique with no genetic engineering, interferon is extracted from, among others, the cells.

Takeda and Nippon Roche licensed the American Roche's genetic engineering technique. The Osaka-based drug concern invested ¥500 million for its equipment, while the subsidiary of Roche group invested ¥1 billion. Animal tests in Japan confirmed no problems with their samples' quality.

In clinical trial, a cancer patient requires 300-400 million units.

Prior to the genetically engineered interferon, three firms — Sumitomo Chemical Co., Green Cross Corp. and Toray Industries, Inc. — supplied their interferon.

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## SCIENCE AND TECHNOLOGY

## FACSIMILE EQUIPMENT EXPECTED TO CLIMB 25 PERCENT

Japan JAPAN ECONOMIC JOURNAL in English Vol 20 No 991, 2 Feb 82 p 9

[Text]

Japan's facsimile equipment production will keep growing at an average annual rate of 25 per cent in the next five years from the current fiscal year, ending next March, to reach ¥257,900 million in fiscal 1985, according to a recent forecast by the Communication Industries Association of Japan. The estimated figure for 1985 is roughly three times larger than the actual production in fiscal 1980.

Among various kinds of equipment, the high-speed type, capable of sending a sheet of A4 size (29 x 21 centimeters) of paper within 1 minute, will increase at an average annual growth rate of 27 per cent during the five-year period, and will reach ¥148 billion in fiscal 1985, while the medium-speed type (3 minutes) will grow by 19.8 per cent per annum to ¥85

Japan's Facsimile Production Estimated by the  
Communication Industries Association of Japan

	Fiscal 1980	FY81	FY82	FY83	FY84	FY85	Average annual growth FY80-85 (%)
High speed type.....	44.9	58.0	76.0	96.0	121.0	148.0	27.0
Medium speed type ..	34.4	42.5	52.0	63.0	74.0	85.0	19.8
Low speed type (*1) ..	0.9	1.3	4.6	8.4	10.8	12.9	69.2
Others (*2).....	4.5	6.0	7.0	9.0	10.0	12.0	21.7
Total.....	84.7	107.8	139.6	176.4	215.8	257.9	25.0

(\*1) includes Minifax; (\*2) such as for governmental offices and mass media, mostly by utilizing closed circuits.

billion, the association predicts.

Especially amazing in growth rate is the low-speed type requiring 6 minutes to send a sheet, which is expected to soar by 69.2 per cent annually to ¥12.9 billion in fiscal 1985. This is because the association included the "Minifax" equipment of the Nippon Telegraph & Telephone Public Corp. in the category of the low-speed type.

Minifax can send in 1½ minutes a sheet of paper, though in smaller A5 size (21

x 15 centimeters).

As soon as NTT started the Minifax service last September at a relatively cheap leasing charge, orders rushed into NTT. The public corporation has a huge back log of orders at the moment. Total orders for Minifax in the first half-year period of its marketing are expected to surpass 20,000 sets.

The low-speed type earlier had started to lose momentum with the introduction of new, high-speed types of facsimile equipment.

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SCIENCE AND TECHNOLOGY

RESEARCH, DEVELOPMENT EXPENDITURES GROW 14.5 PERCENT

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 p 16

[Text]

Japan's research and development expenditures in fiscal 1980 increased 14.5 per cent from fiscal 1979 to ¥5,246.2 billion, according to the Statistics Bureau of the Prime Minister's Office. R & D expenditures in the field of natural sciences accounted for 89.3 per cent of the total, or ¥4,683.8 billion, up 15.3 per cent from the previous year.

As a percentage of GNP, total R & D outlays reached 2.19 per cent, up 0.12 percentage point.

In fiscal 1979, the latest year for which international comparisons are possible, Japan ranked second after the U.S. in R & D expenditures. With Japan as 100, the U.S. registered 281, West Germany 87, France 52 and Britain 35.

The survey, conducted annually since 1953, covered about 13,000 business corporations, 1,300 research institutes, and 1,900 universities and other

groups.

The fiscal 1980 survey showed that expenditures by businesses accounted for 59.9 per cent of the total, or ¥3,142.3 billion, up 17.9 per cent from fiscal 1979, reflecting active R & D investment. The increase was the largest since fiscal 1975. Research institutes spent ¥763.9 billion (a 14.6 per cent share), up 15.7 per cent, and universities and others ¥1,340.1 billion (25.5 per cent), up 6.5 per cent.

By item, personnel expenses marked ¥2,592.7 billion, accounting for 49.4 per cent of the total, the first time it dropped below 50 per cent since fiscal 1974. Spending for raw materials was ¥738.6 billion (a 14.1 per cent share), and for tangible fixed assets ¥934 billion (17.8 per cent).

The ratio of R & D spending to total sales of enterprises was 1.54 per cent, almost the same as 1.55 per cent in the previous year.

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SCIENCE AND TECHNOLOGY

MITSUI, GENTRONICS TIE UP FOR BIOCOMPUTER TECHNOLOGY

Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 p 16

[Text]

Mitsui & Co. has become an agent for Gentronics Inc. of Rockville, Maryland to help the American company sell its biocomputer technology in Japan. Launched in October, 1981, Gentronics is best known for its long-range project to develop a biocomputer by combining electronics and biotechnology. It is investigating nerve cell physiology in an attempt to develop a biocomputer with far better capability than mechanical computers.

The application of biotechnology to electronics is described as super high technology, with only about 10 scholars and researchers engaged in basic studies worldwide. Gentronics, noting Japan's advanced know-how in applying electronics, plans to strengthen its connection with Japan through technological sales in Japan.

The Tokyo-based trading house agreed to undertake three major jobs: marketing drugs and chemicals required for the kind of research and development as the Maryland firm is working on, commis-

sioning research projects by Japanese clients, and helping Japanese companies invest in the U.S. firm.

If realized, biocomputers that could incorporate elements whose efficiency is 10,000 times as good as the best element available today (the 64 kilobit random access memories) will make the present computers look crude.

Semiconductor makers in Japan are not enthusiastic about the new computers yet. Their activities are confined to follow-up tests to confirm reported data. But bright researchers will perhaps rush to nerve cell physiology research because of its potential.

Biocomputer development will depend in large measure on discovering proteins that serve as molecular switches in the human brains (the best computers). Switches in mechanical computers are made of semiconductors.

Discovery of such proteins will hopefully lead to their mass production by genetic engineering so that they can replace semiconductors.

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SCIENCE AND TECHNOLOGY

MITI PROJECT TO DEVELOP SUPERCOMPUTER STARTS IN JANUARY

Tokyo NIHON KOGYO SHIMBUN in Japanese 3 Jan 82 p 1

[Article: "Science and Technology High-Speed Electronic Computer Project Started in Earnest; Entrusted by the Agency of Industrial Science and Technology, Six Private Firms Form an Association"]

[Text] R&D of a high-speed computer system, or the so-called supercomputer, for science and technology started in earnest in January. This research project is being undertaken by the Agency of Industrial Science and Technology (AIST) under MITI with the cooperation of the Electronic Technology Consolidated Research Center (ETCRC) and private computer makers. A "Technological Research Association for the Development of a High-Speed Computer System for Science and Technology," which is a "saucer" on the private side, was established late last year. The AIST is to sign an agreement with this association in early January concerning the research contract.

The 1981 budget (quarterly) for R&D of a supercomputer was 30 million yen. This budget consisted of two funds of equal amounts: the R&D budget for ETCRC and the research fund for the private association. The 1982 government budget includes the sum of 813 million yen earmarked for this project (117 million yen for ETCRC and 696 million yen for the private association), and the two are to continue their 1981 research through 1982.

The objectives of the present R&D activities include development of basic technology related to new elements and new processing formats. The ETCRC is responsible for R&D of: 1) niobium group Jusenolin [phonetic] junction (JJ) element, 2) gallium-arsenic group field effect transistor (GaAsFET), and 3) multi-instruction single data (MISD) format. The private association is charged with R&D of: 1) lead group JJ element, 2) intergration of GaAsFET, 3) high electron movement transistor (HEMT), and 4) multi-instruction multidata (MIMD) and single instruction multidata (SIMD) which are considered to be difficult even with an application of parallel processing format.

On the other hand, a technical research association (managing director, Takuma Yamamoto, president of Fujitsu Ltd) consisting of six private firms--including Fujitsu, Hitachi, Nippon Electric, Toshiba, Mitsubishi Electric, and Oki Electric--which is to participate in this supercomputer R&D project, was established at Toranomon, Tokyo recently. As soon as the contract is signed with

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the AIST, each firm will undertake a portion of R&D activity in the field of its specialty. According to the agency authority, the research work will be carried out at each individual's place of work, for the time being. Depending on the budget situation and actual progress of work, a central research laboratory shared by the six firms may be established, as was done during the R&D of the super LSI.

The objective of this supercomputer R&D project, which was started in 1981 and is to last 8 years with a total investment of approximately 31 billion yen, is to develop a prototype of a super-high-speed computer system for science and technology with a processing speed of 10 billion FLOPS (number of floating point operations per second), which is more than 1,000 times faster than the processing speed (10 million FLOPS) of the general purpose large-scale computers today. There are many computations for which the fastest computers today are not fast enough, including, for example, processing of image information transmitted back from artificial satellites, plasma simulation of nuclear fusion, meteorological data analysis, and aerodynamic computation for aircraft. Therefore, a number of commercial supercomputers have been developed in the United States, such as the CRAY-1 (processing speed greater than 150 million FLOPS) and CYBER 203 (100 million FLOPS). The supercomputer which is being developed by the AIST is aimed at a much higher performance.

However, in order to be able to achieve this goal, a general system consisting of the following components must be developed first: 1) high-speed logic elements and high-speed memory elements to replace the silicon elements used today; 2) parallel processing format for operating a large number of basic processors simultaneously; and 3) parallel processing device for high-speed computation, large-capacity high-speed memory device, and parallel processing device for distributed processing.

The supercomputer research, which was started in January, must first of all decide which parallel processing format is to be adopted, and then carry out research activities related to it.

The performances of the elements to be developed by this project are as follows. Logic element: packing density of better than 3,000 gates/chip, delay time of less than 10 picoseconds/gate for low-temperature element and less than 30 picoseconds/gate for normal temperature element. Memory element: packing density of better than 16 kbites/chip and access time of less than 10 nanoseconds. These elements are said to be used in the prototype of MITI's "fifth generation computers" also.

The goal set for the parallel processing device to be used in the high-speed computation includes a speed of 10 billion FLOPS or more, a memory capacity of more than 1 billion bites, a transfer rate of 1.5 billion bites per second or more, and a maximum processing speed of more than 100 million FLOPS for the parallel processing device used for the purpose of distributed processing.

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## SCIENCE AND TECHNOLOGY

## BRIEFS

USSR ORDERS LATHES--Dainichi Kozoku Kogyo Co of Osaka has won a Soviet order to supply ¥730 million worth of lathes for delivery by February, 1983. The Russian order breaks down into 21 large uni-purpose lathes and 2 large numerically controlled lathes, worth ¥350 million, with shipments starting in July, this year, and ¥380 million worth of uni-purpose lathes for automaking, with shipments beginning in November, the same year. In addition, the Osaka company has received an inquiry from the Soviet Union for ¥2,500 million worth of lathes for machinery and equipment to be installed at the Yakutia natural gas plant. [Text] [Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 p 6] [COPYRIGHT: 1982, the Nihon Keizai Shimbun, Inc.]

WORLD'S LARGEST ROBOT MILL--Kawasaki Heavy Industries, Ltd., a top-rated maker of industrial robots will build a factory in an industrial zone at Tarumi, Kobe City, Hyogo Prefecture to mass produce industrial robots. The robot factory project, divided into three stages, will cost an estimated ¥17 billion. Under the first-stage program, the company will begin constructing a plant this fall to start it up in January, 1984. The projected plant will become the world's biggest as a specialized robot-making factory, a Kawasaki HI spokesman said. Kawasaki HI thus hopes to boost its sales of robots to ¥20 billion in fiscal 1984, treble the ¥7 billion in fiscal 1981 ending next March. Second and third plants will be constructed in accordance with demand growth. Japan's sales of industrial robots are expected to swell to ¥600 billion in fiscal 1990 from the ¥78 billion scored in fiscal 1980. Kawasaki HI apparently aims at assuring itself of retaining the No 1 spot in the field of high-efficiency robots in Japan. [Text] [Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 p 6] [COPYRIGHT: 1982, the Nihon Keizai Shimbun, Inc.]

4K STATIC RAM'S--Hitachi, Ltd announced that it would start sample marketing of six types of 4-kilobit complimentary-MOS static random access memory chips from February 1. The 4K RAMs consume only about one-fourth the power of a high-speed 4K NMOS static RAMs while attaining a comparable maximum address-access time of 35 nanoseconds, the Tokyo company said. The high-speed address-access time and low power consumption of the new RAMs were realized through the adoption of a double polysilicon structure and 2.5 micron processing technology in combination with Hi-CMOS design technology. The combined techniques enabled Hitachi to make the memory cells by the NMOS process and the peripheral circuits by the CMOS process, it explained. Hitachi has already started mass producing the HM6147H series at its Musashi Works in western Tokyo at a monthly rate of



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several thousand units. It plans to boost the production capacity to the 100,000 unit level in May. Nearly half of the production is expected to be sold in the U.S. for the use in such areas as cache memories, buffer memories, program memories and terminals for medium and small computers, according to Hitachi. Prices for sample marketing will be between ¥1,500 and ¥2,500 per unit. [Text] [Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 p 8] [COPYRIGHT: 1982, the Nihon Keizai Shimbun, Inc.]

COMPUTER EXPORTS INCREASE--Fujitsu Limited, Japan's largest computer builder, plans to step up computer exports to nearly 30 per cent of its computer division's total sales from the present 10 per cent by the end of fiscal 1985. The company has already set up footholds for penetrating the world market under licensing agreements with Amdahl Corp. of the U.S., Siemens A.G. of West Germany, and ICL of Britain. These partners are to sell Fujitsu's large-size computers under their own brands and buy semi-finished products from the Japanese company. Fujitsu's exports of large-size computers are likely to surpass domestic shipments in fiscal 1985. Fujitsu is also readying itself for promotion of terminal equipment exports. In 1980, it set up TRW-Fujitsu Co., in a joint venture with TRW Co of the U.S., to handle sales of terminal systems for financial institutions and retail shops. Exports of terminal equipment in fiscal 1982 are expected to reach 47,000 units, three times larger than the estimated fiscal 1981 performance. Fujitsu's total sales in the computer division in fiscal 1981 are expected to reach ¥445 billion, up 16 percent from the previous year, with exports accounting for 13 per cent or ¥58 billion. For fiscal 1982, the company predicts a 50 percent rise in exports. [Text] [Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 990, 26 Jan 82 p 8] [COPYRIGHT: 1982, the Nihon Keizai Shimbun, Inc.]

INTERFERON PRODUCTION BOOST--Hayashibara Biochemical Laboratories, Inc, has started expanding its interferon production capacity at Okayama City. Upon completion of the ¥2.2 billion project in December, 1982, the company will be capable of producing 600 billion units of interferon a year. The plan to double the interferon capacity follows completion in January, 1981, of a 300-billion-unit-a-year plant, including facilities to constantly breed 10,000 hamsters. Besides the 15 hamster chambers, the plant with a total floor space of 1,700 square meters is equipped with interferon cultivation and test facilities. The company's interferon technique features hamster cell multiplication technique. [Text] [Tokyo JAPAN ECONOMIC JOURNAL in English Vol 20 No 991, 2 Feb 82 p 13] [COPYRIGHT: 1982, the Nihon Keizai Shimbun, Inc.]

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